Armed Forces College of Medicine

AFCM

Neoplastic diseases of liver

Dr. Riham Abu-Zeid
Prof. of Pathology

INTENDED LEARNING OBJECTIVES (ILO)

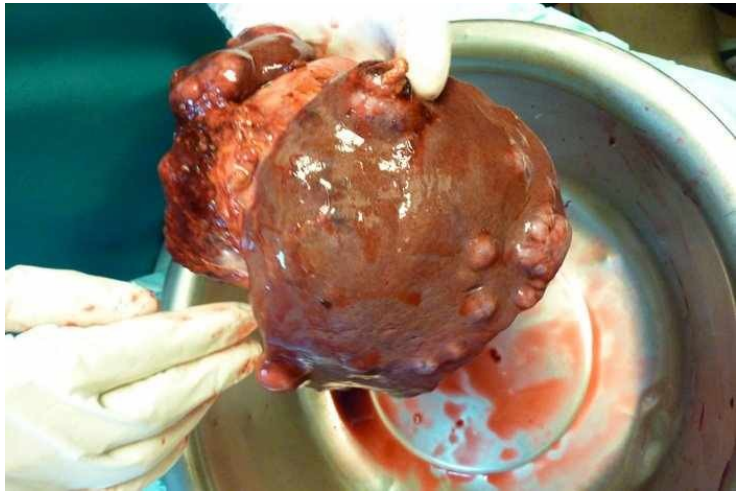
By the end of this lecture you will be able to:

- Classify liver tumours_
- Describe the pathologic features of common liver tumours
- List causes of hepatomegaly
- Correlate pathologic features of liver tumors with their clinical picture, investigations and complications

Lecture Plan

1. Part 1 (5min): General classification of hepatic tumours
2. Part 2 (15 min) :Benign tumours
3. Part 2 (25 min):Malignant tumours & causes of hepatomegaly
4. Lecture Quiz (5 min)

Classification of Liver Tumours



http://mytwogirls.net/wp-content/uploads/2010/03/tumor1.jpg

Primary

Benign

Malignant

Secondary

Most common

Primary Tumours of the Liver

Cell of Origin	Benign	Malignant
Liver Cell	Liver Cell Adenoma	Hepatocellular Carcinoma Hepatoblastoma
Bile Duct Epithelium	Bile Duct Adenoma Bile D.Cystadenoma	Cholangiocarcinoma (Bile duct carcinoma)
Sinusoids	Haemangioma	Angiosarcoma
Lymphoid Tissue		Lymphoma

1-Liver Cell Adenoma

- **Nature** :Benign tumour of hepatocytes
- **Pdf**: Contraceptive pills

- **Complication** :
- May rupture & cause intraperitoneal hemorrhage
- Mistaken for HCC
- Low risk for malignancy

Benign Tumours

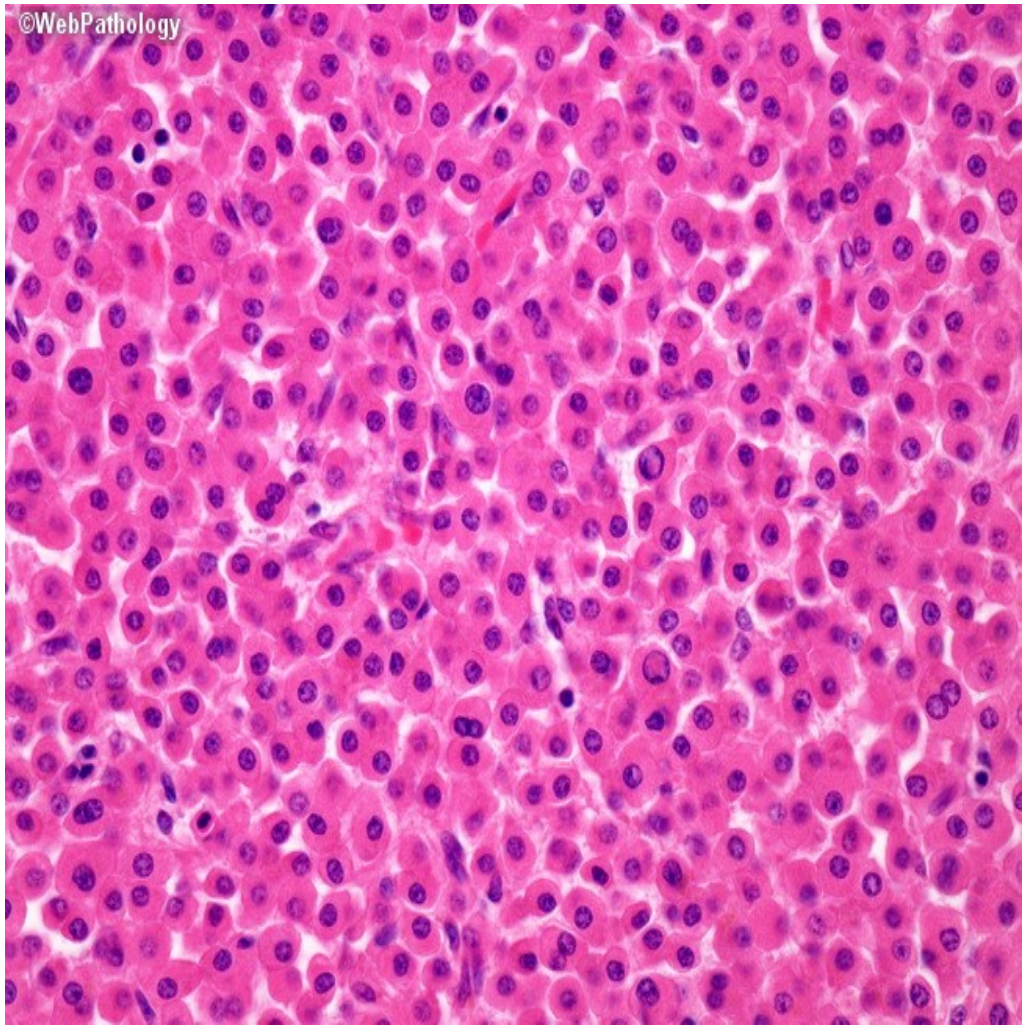
1-Liver Cell Adenoma

Gross: Well circumscribed subcapsular in position

Mic:

Normal (bland)hepatocytes not arranged in lobular architecture with absent portal tract

https://webpath.med.utah.edu/jpeg4/LIVER058.jpg



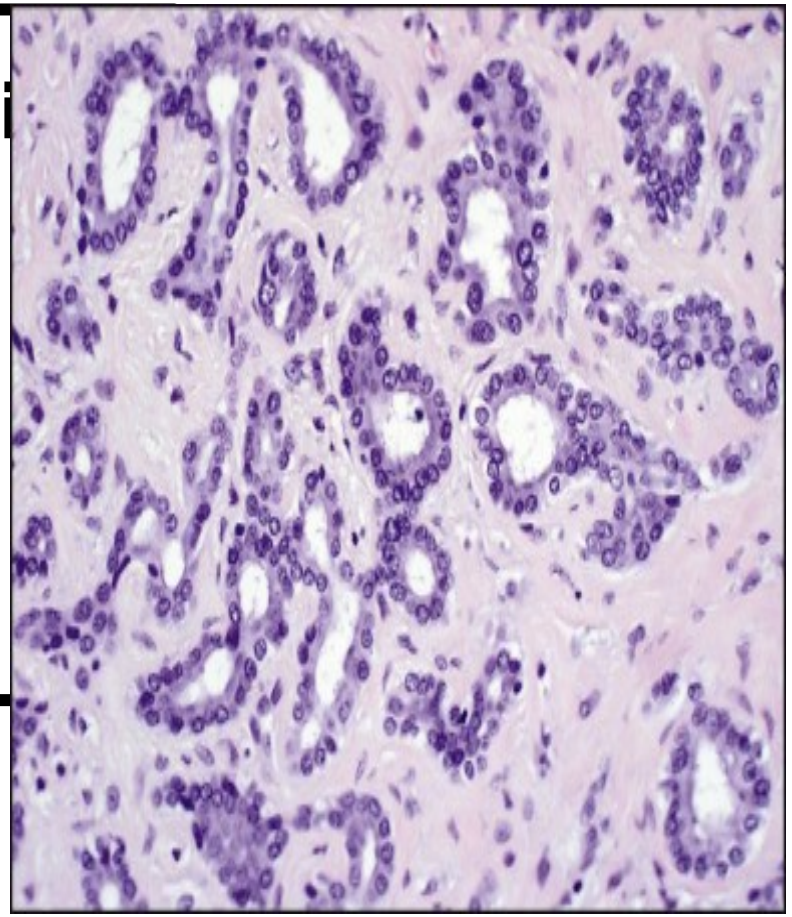
https://www.webpathology.com/image.asp?n=4&Case=237

Benign Tumours

2-Bile Duct Adenoma

ure: Benign tumour from bile duct epitheli

aching bile duct like structures set
fibrous tissue stroma



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Benign Tumours

3-Cavernous Haemangioma

Nature: benign vascular tumour

C/P:

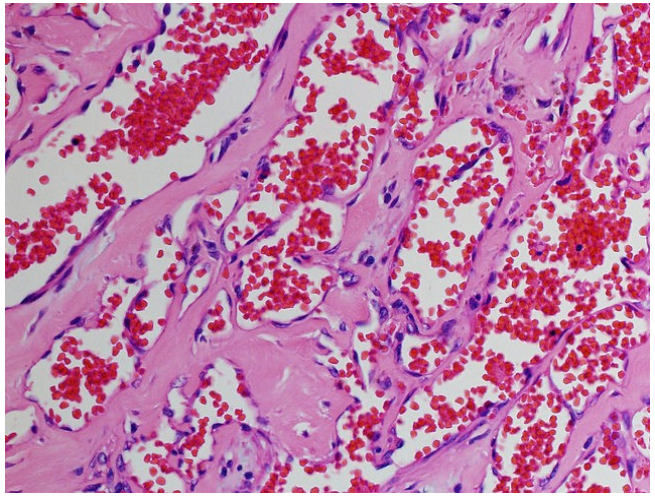
Asymptomatic +/-pain-swelling - hemoperitoneum

Gross: Noncapsulated mass - dark colour

Mic :

- Large vascular spaces filled with

http://peir.path.uab.edu/library/_data/i/upload/2013/08/01/20130801095835-1406a87e-me.jpg



http://www.pathologyoutlines.com/imgau/adrenal/AdrenalHemangiomaGellert02.jpg

Benign Tumours of Liver (Quiz)

A subcapsular mass in the right hepatic lobe composed histologically of normal hepatocytes not arranged in lobular architecture with absent portal tract .Which of the following is the most important predisposing factor for this lesion?

a.Aflatoxin exposure

b.Hepatitis B

c.Oral contraceptive pills

d.Cirrhosis

Benign Tumours of Liver (Quiz)

A subcapsular mass in the right hepatic lobe composed histologically of normal hepatocytes not arranged in lobular architecture with absent portal tract .Which of the following is the most important predisposing factor for this lesion?

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Malignant Tumours

1-Hepatocellular Carcinoma

- Most common malignant tumour from hepatocytes
- Age:40-50 years M :f 5:1
- Alpha feto protein (AFP) : elevated in 50% of cases (non specific-non sensitive)
- Etiological factors:
  - HBV,HCV
  - Aflatoxin: Aspergillus flavus fungus contaminating grains & peanuts.
  - Cirrhosis
  - Hemochromatosis
  - Alcoholic cirrhosis- NAFLD
  - α1-antitrypsin deficiency.
  - Anaboloic Steroid hormones

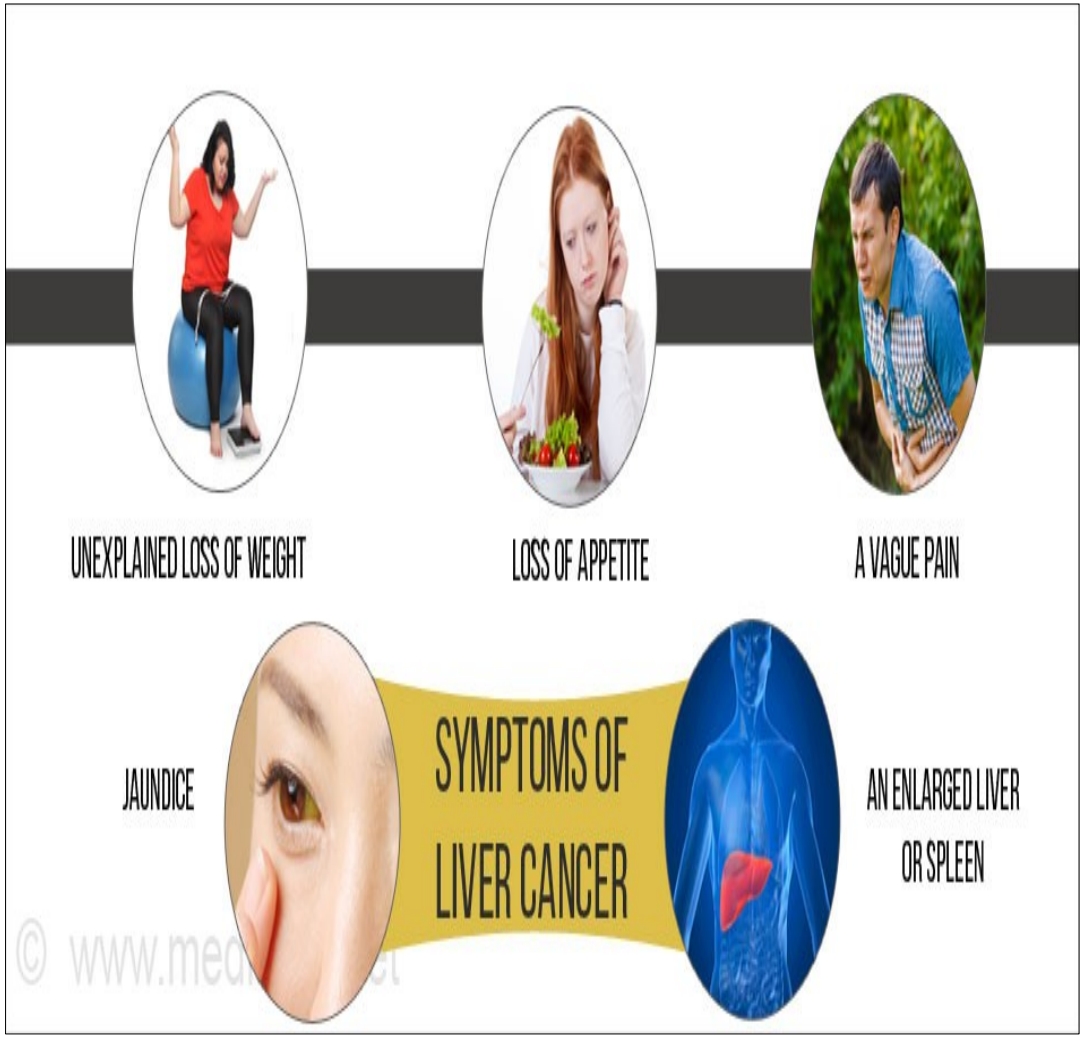
Malignant Tumours

1-Hepatocellular Carcinoma

C/P:

1. **Silent hepatomegaly**
2. **Jaundice- fatigue –weight loss**
3. **Patients with cirrhosis**:
   - Rapid increase in liver size
   - Worsening of ascites- bloody ascites
   - Fever & abdominal pain

3. **Elevated serum α-fetoprotein** (lacks specificity)



http://www.medindia.net/images/common/patientinfo/950_400/symptoms-of-liver-cancer.jpg

Malignant Tumours

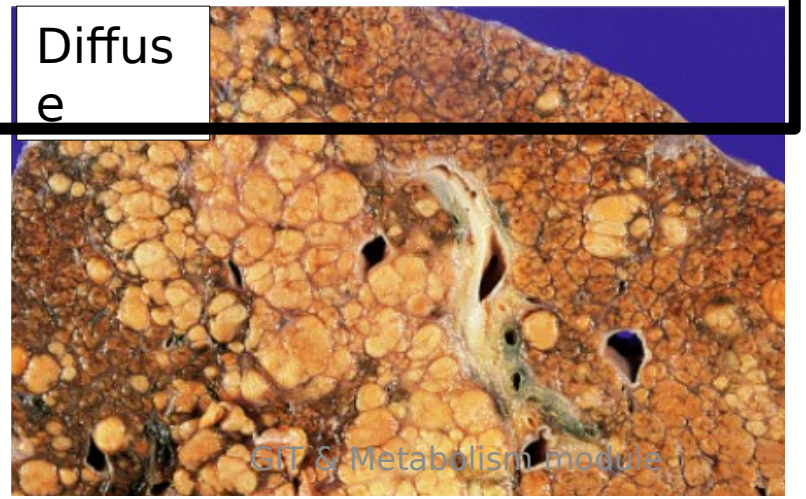
1-Hepatocellular Carcinoma

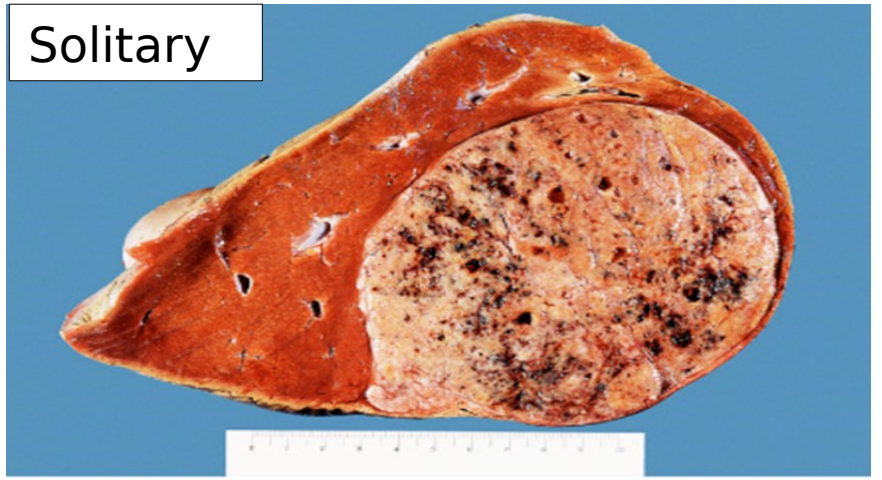
Gross:

1-Solitary tumor

2-Multinodular : Multiple nodules.

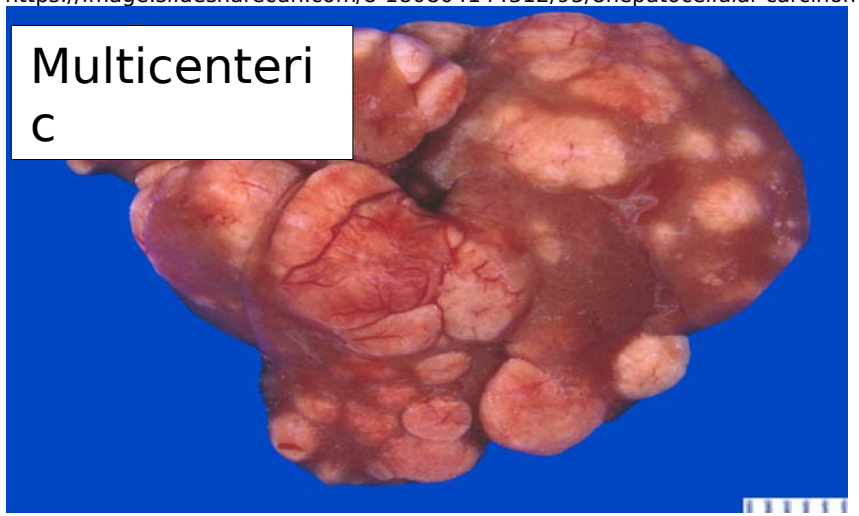
3-Diffuse: Liver entirely infiltrated by tumor.





https://accessmedicine.mhmedical.com/data/books/1772/kantmmo3_ch22_f002.png

https://image.slideshare.com/8-180804144312/95/8hepatocellular-carcinoma-



https://www.niehs.nih.gov/research/resources/visual-guides/liverpath/assets/images

Malignant Tumours

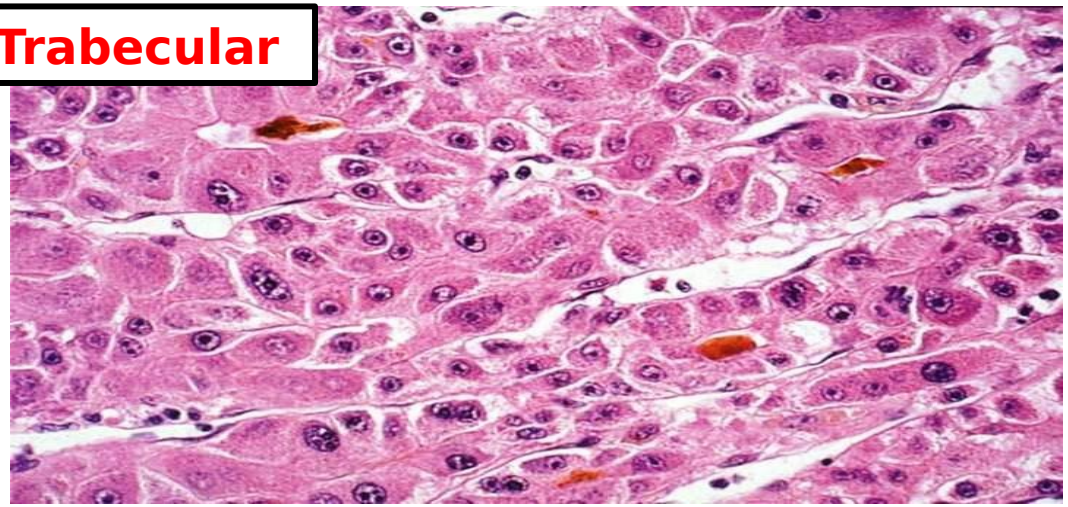
1-Hepatocellular Carcinoma

Mic:

- Hepatocytes arranged in **trabecular or acinar pattern**
- Cells show criteria of malignancy
- Bile may be found in hepatocytes or pseudocaniculi
- Scanty stroma
- Immunohistochemitry :

Hep –par 1 & AFP

Trabecular



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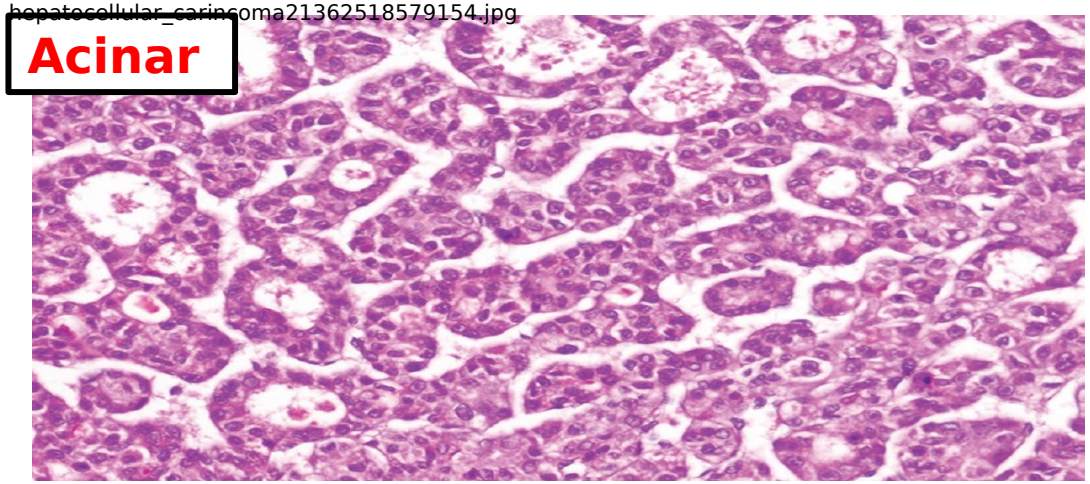


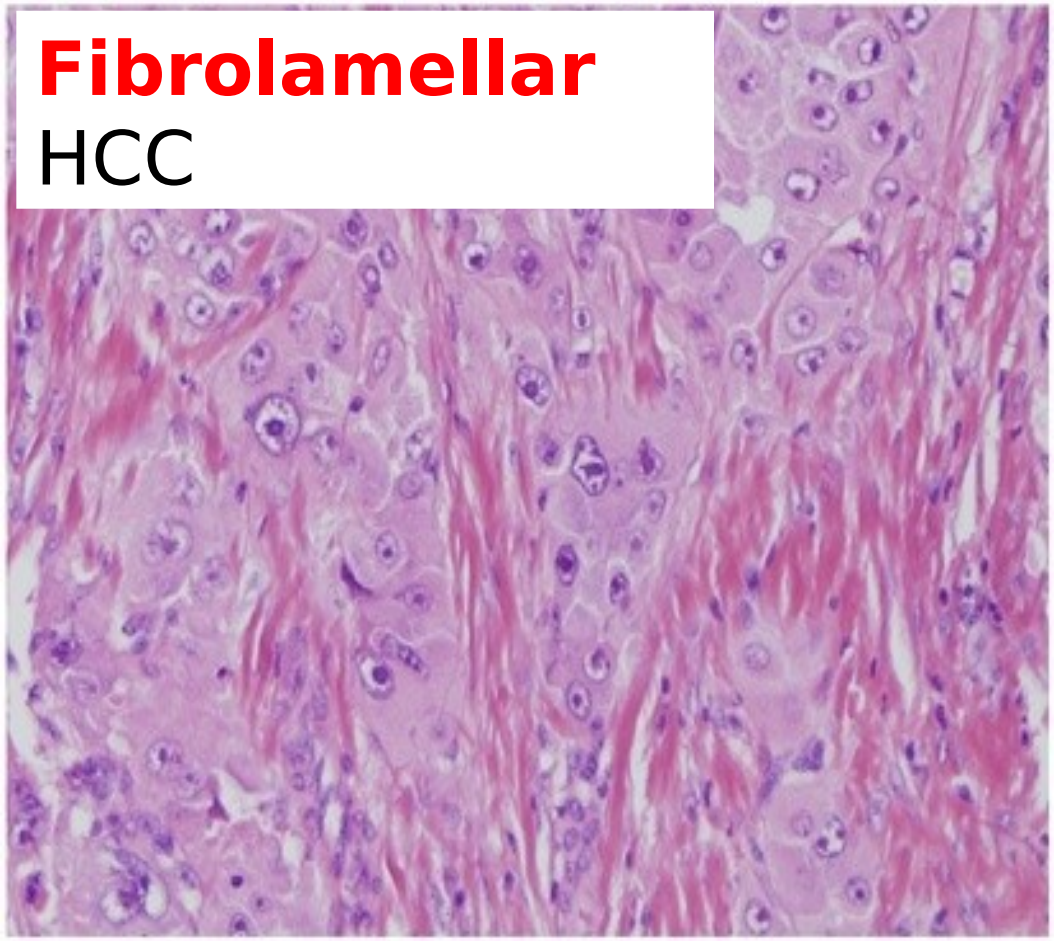
http://www.mmj.eg.net/articles/2015/28/3/images/MenoufiaMedJ_2015_28_3_712_165822_f3.jpg

Malignant Tumours

1-Hepatocellular Carcinoma

Fibrolamellar type of HCC

- 20-40 y
- No cirrhosis or other risk factors
- Fibrous bands
- Large eosinophilic cells
- Better prognosis



https://media.nature.com/m685/nature-assets/modpathol/journal/v18/n11/images/3800449f1.jpg

Malignant Tumours

2-Hepatoblastoma

- **Nature :** malignant embryonic tumor in infants.
- Most common primary hepatic tumour of children

- **Gross:**

Large mass with extensive necrosis & hemorrhage.

- **Mic:**

Malignant immature hepatocytes + mixed

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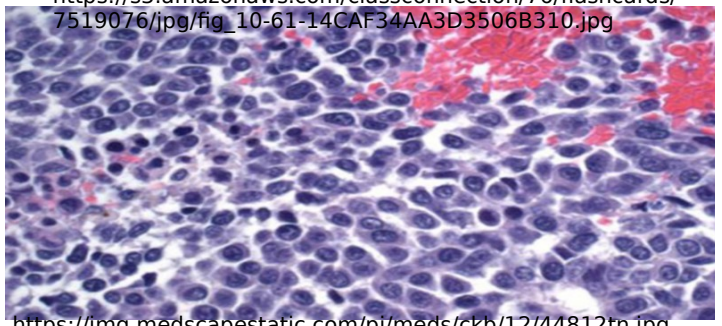

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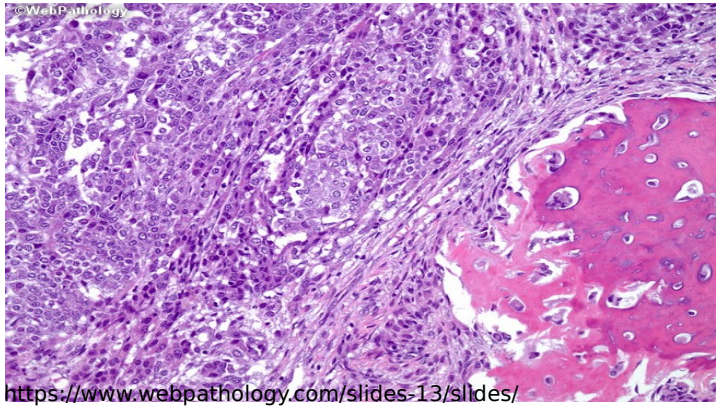


https://www.webpathology.com/slides-13/slides/Liver_Hepatoblastoma11_Embryonal_Mesenchymal.jpg

Malignant Tumours

3-Bile Duct Carcinoma (Cholangiocarcinoma)

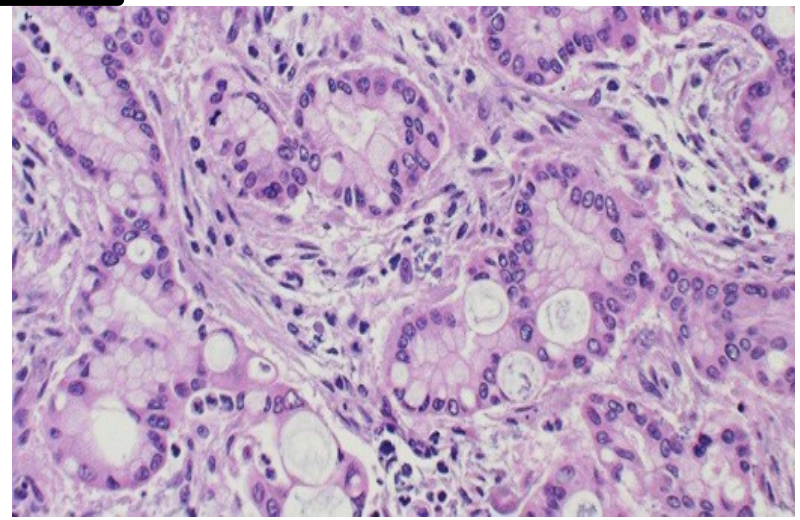
- **Nature :** Malignant tumour of bile duct epithelium (Intra or extra)

- **Pdf: chronic inflammation & cholestasis eg:**
  Primary sclerosing cholangitis – Liver parasites

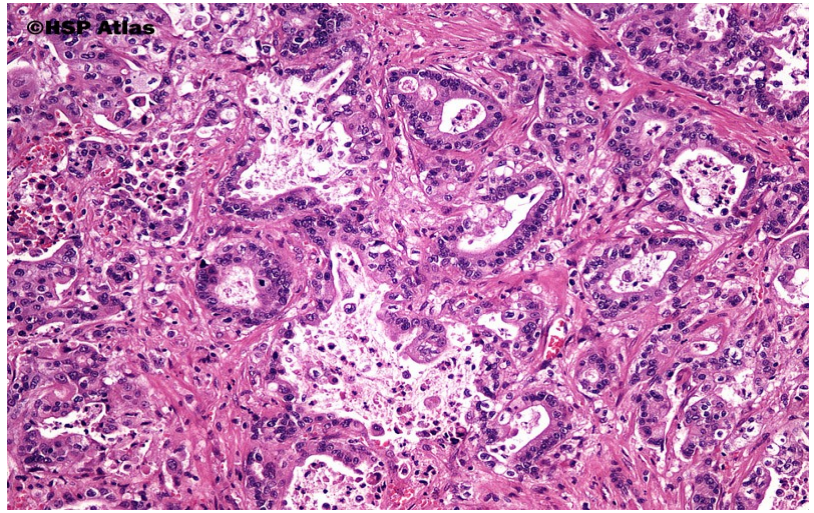
- **Gross:** Single or multiple masses.

- **Mic:**

Adenocarcinoma +abundant fibrous



http://mdppath.com/slideshow/cholangiocarcinoma2.jpg



http://www.patologia.cm.umk.pl/atlas/gastrointestinal/liver/cholangiocarcinoma/i

Malignant Tumours

3-Bile Duct Carcinoma (Cholangiocarcinoma)

Prognosis :

- Extrahepatic biliary tumors : early detected **WHY??**

  as it causes **obstructive jaundice** so it's small at time of diagnosis

- Intrahepatic biliary tumors :late detection (no early obstructive jaundice)
- Spread to LN- lungs- bones -adrenals

Malignant Tumours

4-Angiosarcoma

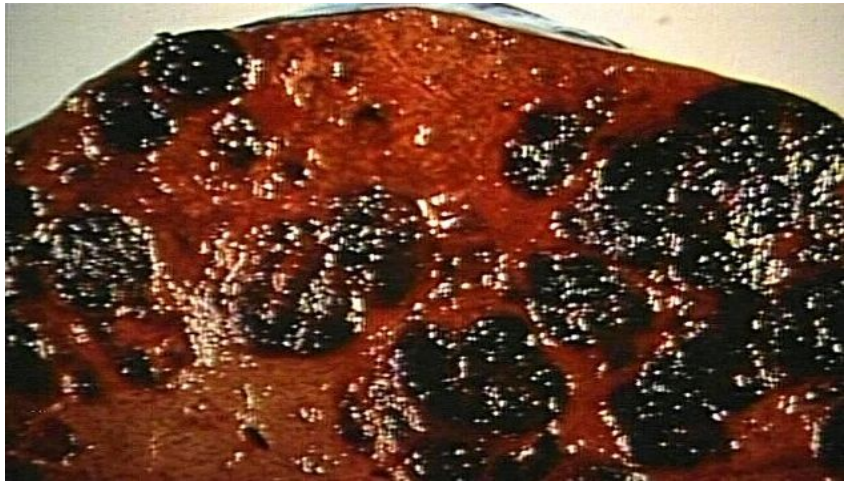
Nature: Malignant vascular tumour

Gross: multiple communicating

purplish masses

Mic: Malignant cells lining communicating

vascular channels



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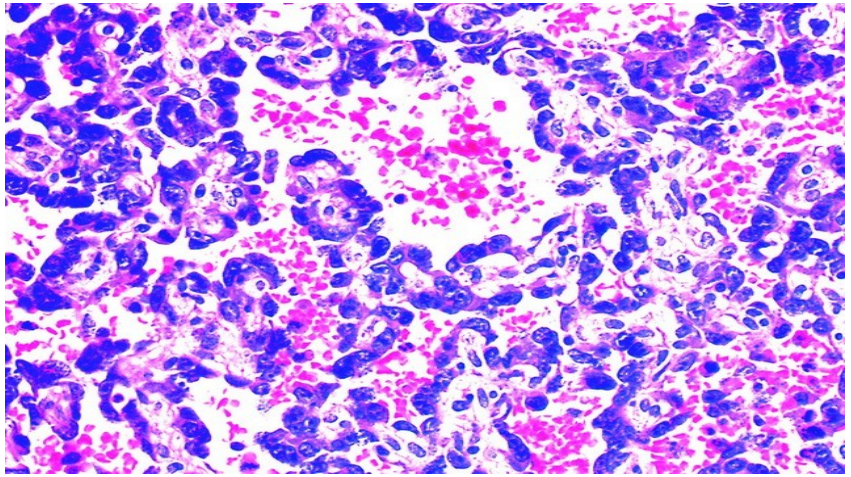


https://www.ncbi.nlm.nih.gov/pubmed/

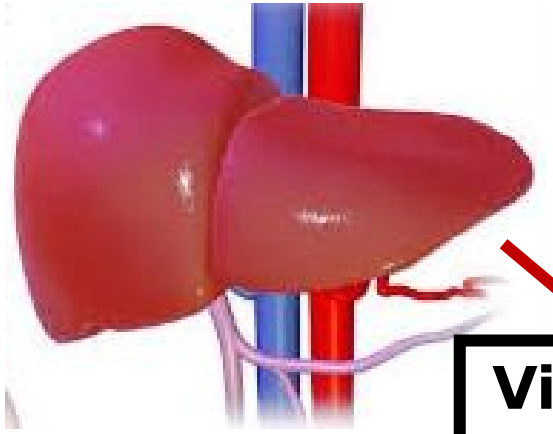
Secondary (Metastatic)Tumours

- Common
- Large nodules show central necrosis (umbilication).
- Routes of spread to the liver:

1. Direct

From cancer stomach, gall bladder, colon

2. Blood



Via portal vein

eg:from cancer GIT

Via hepatic artery

eg: from cancer lung

https://prod-images.static.radiopaedia.org/images/29337/dda15f297284c4070e79953fd8bedf_jumbo.jpg

List causes of hepatomegaly

1-Suppurative inflammation.

2-Granulomatous diseases of the liver: eg TB & sarcoidosis.

3-Parasitic diseases: such as bilharziasis, malaria "acute and chronic", amebiasis of the liver and hydatid cyst.

4-Degeneration: fatty change & amyloidosis.

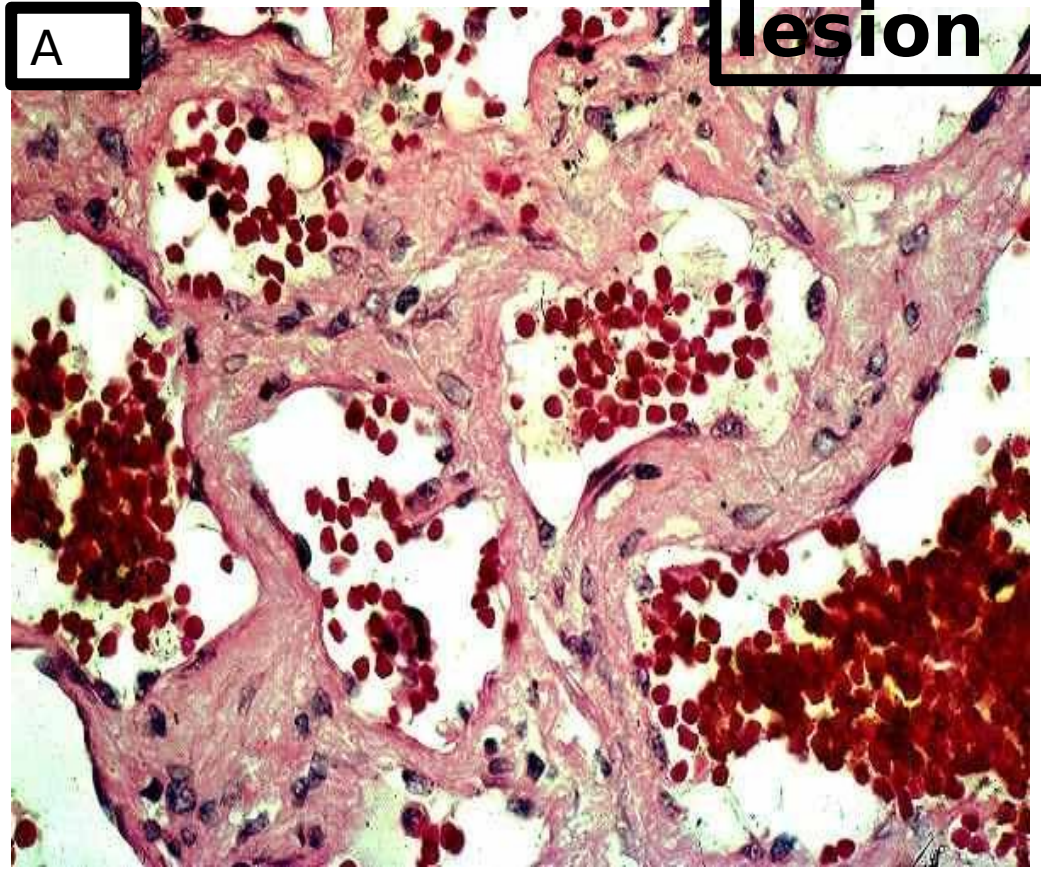
5-Chronic venous congestion (nutmeg liver)

6-Malignant tumors of the liver both primary &

Tumours of liver (Quiz)

Identify each lesion

A



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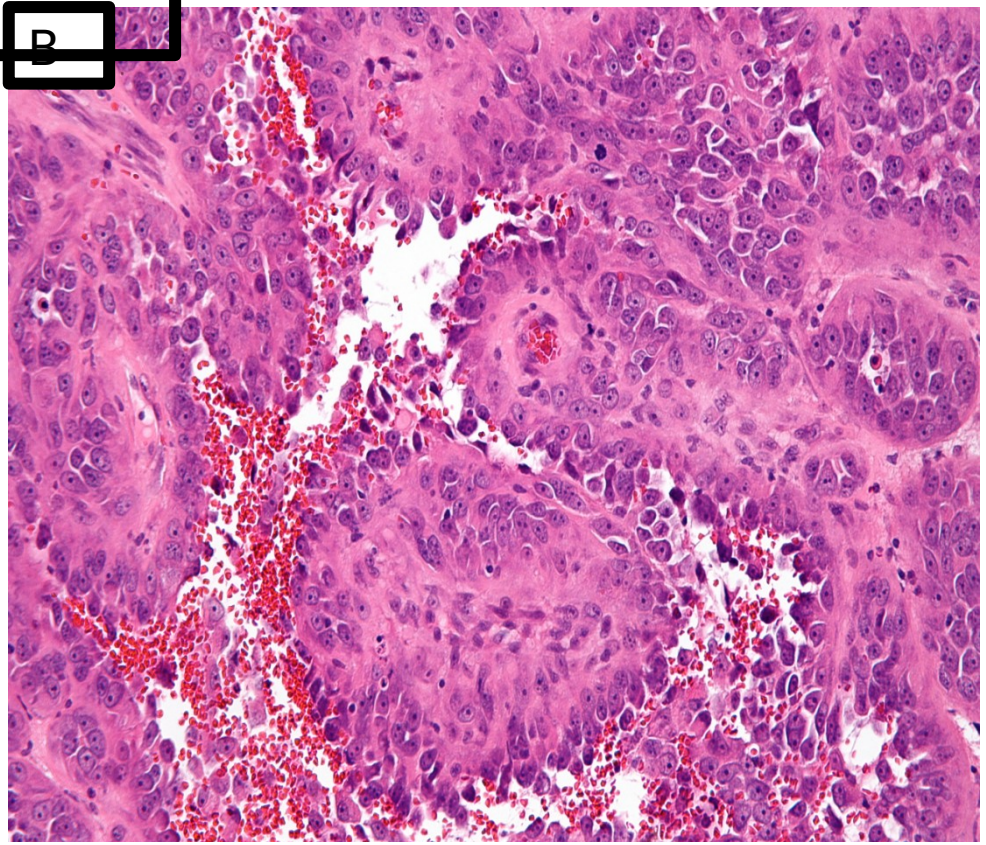

Hemangioma

Angiosarcoma

Tumours of liver (Quiz)

Match

1.Hepatoblastoma	a. Ducts lined by bland epithelial cells
2.HCC	b. non communicating bland blood filled spaces
3.Hepatic adenoma	c. Aflatoxins
4.Cholangiocarcinoma	d. Embryonal cells
	e. Contraceptive pills
5.Cavernous	f. Malignant bile

Tumours of liver (Quiz)

Match

1.Hepatoblastoma	d	a. Ducts lined by bland epithelial cells
2.HCC	c	
3.Hepatic adenoma	e	b. non communicating bland blood filled spaces
4.Cholangiocarcinoma	f	c. Aflatoxins
5.Cavernous	b	d. Embryonal cells
		e. Contraceptive pills
		f. Malignant bile

Keypoints

- Clarification of liver Tumours
- Oral contraceptive pills predispose to Hepatic adenoma
- Hepatocellular carcinoma has several important predisposing factors
- Aflatoxin predisposes to HCC
- Microscopic features of both benign and malignant liver tumours

Suggested Textbook

Neil D. Theise. Liver and gall bladder. In Robbins and Cotran pathologic basis of disease, 10th edition. Kumar, Abbas & Aster (eds). Elsevier Saunders. Pages 637-676

Thank You